

Remarks

The present invention is directed to improved hydraulically settable construction adhesives containing from 0.2 to 1.5 weight percent of an auxiliary monomer having a water solubility higher than vinyl acetate. It has been surprisingly discovered that over this very limited range of auxiliary monomer, considerable improvement in adhesive tensile strength occurs, even when wet, whereas outside this range, tensile strength imparted by the polymer is not increased, but rather decreases.

The claims have been rejected over Geissler U.S. Patent 6,331,587 ("*Geissler*") under 35 U.S.C. § 102(e) and § 103(a). Applicant respectfully traverses these rejections.

Geissler is directed to redispersible polymer powders with increased storage stability. *Geissler* achieves this greater stability by using a special cationic azo initiator for the emulsion polymerization, rather than the more common peroxy-type initiators. In addition to increased storage stability, *Geissler* also demonstrates that his polymers increase the slump of cementitious compositions, which is important in compositions such as self-leveling flooring cements. *Geissler* does not mention tensile strength of constructive adhesives.

As indicated previously, the redispersible polymer powders of *Geissler* are prepared by employing an uncommon free radical polymerization initiator, a cationic azo compound, in the emulsion polymerization. At column 2, lines 38-47, a list of preferred vinyl esters is set forth, including vinyl acetate (used in all examples), and VeoVa®10, used in the majority of the examples together with vinyl acetate.

At column 2, lines 48 to 60, *Geissler* indicates that any copolymerizable monomer can be used along with the vinyl ester monomers, preferably in a range of up to 50%, more preferably 5 to 30 percent:

Any monomer that is polymerizable with vinyl esters can be used as optional comonomers. Suitable comonomers include ethylene and esters of acrylic acid or methacrylic acid with an alcohol containing 1 to 12 carbon atoms, for example, methyl acrylate, ethyl acrylate, n-propyl acrylate, n-butyl acrylate, i-butyl acrylate, t-butyl acrylate, n-hexyl acrylate, n-octyl acrylate, 2-ethylhexyl acrylate, methyl methacrylate, ethyl methacrylate, n-propyl methacrylate, n-butyl methacrylate, i-butyl methacrylate, n-octyl methacrylate, and 2-ethylhexyl methacrylate. The content of these comonomers is preferably up to 50% by weight, in particular 5 to 30% by weight, based on the total amount of monomers employed.

Geissler used only one of these monomers, however, n-butylacrylate (Examples 1-5, all runs).

Geissler, at column 2, line 61 to column 3, line 3, also indicates that monoolefinically unsaturated acids can be used, in amounts up to 5% by weight, preferably 0.1 to 5% by weight:

Furthermore, monoolefinically unsaturated monocarboxylic acids and dicarboxylic acids, for example acrylic acid, methacrylic acid, maleic acid, fumaric acid, and itaconic acid, and mono- and diesters of the dicarboxylic acids, for example maleic acid monomethyl ester and maleic acid mono-2-ethylhexyl ester, and also salts of the above mentioned acids, can be employed. The content of these comonomers is preferably up to 5% by weight, in particular 0.1 to 5% by weight, based on the total amount of monomers employed.

However, not a single example employed such a monomer. Moreover, *Geissler* indicates that his process is preferably carried out exclusively with vinyl esters, with a less preferred embodiment including vinyl esters and neutral or anionic monomers. All the monomers listed at column 2, lines 48-60 are neutral monomers. Anionic monomers are the salts of unsaturated carboxylic acids listed at column 2, lines 66-67. Claim 14 of *Geissler* calls for such monomers in an unlimited range.

The rejections under 35 U.S.C. § 102(e) and § 103(a) will be discussed separately.

1. **The 35 U.S.C. § 102(e) Rejection**

Applicant earnestly submits that there is no anticipation of the claims within the meaning of 35 U.S.C. § 102. As stated clearly in *In re Brown*, 141 USPQ 245, 249 (CCPA 1964):

the true test of any prior art relied on to show or suggest that a chemical compound is old is whether the prior art is such as to place the desired “compound” in the possession of the public.

The law established by *Brown* and other cases, which are binding precedent on all the lower courts in the land, the Patent Office, and even the Federal Circuit itself, unless repudiated by an expanded panel, has been the law for almost half a century, and will undoubtedly remain the law as long as we have a Patent System.

Brown, like the present case, was directed to a polymer, in the case of *Brown*, a homopolymeric polyorganosiloxane elastomer, containing fluoroalkyl substituents rather than a low molecular weight distinct “compound” as one might otherwise imply from the cited section. The prior art clearly “disclosed” the same type of polymer produced by *Brown*, fluoroalkyl-substituted homopolymers, and synthesized polyorganosiloxane copolymer elastomers containing fluoroalkyl units. However, no homopolymer was synthesized. *Brown* had discovered that his homopolymers exhibited high tensile strength as well as minimal swelling when exposed to lubricating oils. The CCPA had little difficulty in reversing the Board’s affirmance of the rejection over the prior art. Since the prior art reference never actually made the compounds, it cannot have rendered the compounds obvious, particularly in view of the inability of the prior art to make the compounds. The reference failed to place the invention in the hands of the public. Moreover, the CCPA agreed that the same result would be achieved whether the rejection is under 35 U.S.C. § 102 or § 103. *Brown* at 248.

Here, Applicant does not find that a *prima facie* case of unpatentability under 35 U.S.C. § 102(e) has been made out. A rejection for lack of novelty under 35 U.S.C. § 102 requires that each claim limitation be expressly and unambiguously disclosed in but a single reference. *See, e.g. In re Marshall*, 198 USPQ 344 (CCPA 1978) (all material elements of a claim must be found in the prior art source). Here, claims 21-36 are composition claims directed to hydraulically setting construction adhesives containing a specific redispersible polymer powder stabilized with a polyvinyl alcohol protective colloid, and being a vinyl ester polymer containing 0.2 to 1.5% by weight of a comonomer having water solubility greater than vinyl acetate. The 0.2 to 1.5% limit is a critical limitation which is not disclosed in the prior art. Neither the disclosure of 0 to 5%, nor the “more limited” disclosure of 0.1 to 5%, nor the yet broader disclaimer of claim 14 (no limit disclosed; 0-99+%) discloses the critical range of 0.2 to 1.5 weight percent. There can thus be no anticipation, since a major claim limitation, the limited range of 0.2 to 1.5, is nowhere disclosed by the reference. It should be noted that anticipation requires “strict identity.” *Trintec Industries, Inc. v. TOP-U.S.A. Corporation*, 63 USPQ2d 1597 (Fed. Cir. 2002). Disclosing a range of 0 to 99+% (claim 14) or even a narrower range of 0.1 to 5, without employing these monomers in any amount in any example, certainly does not meet the “strict identity” test of *Trintec*.

Claims 37-39 stand on a yet different footing, since these claims are process claims which require increasing the tensile strength of the construction adhesive, in addition to the 0.2 to 1.5 weight percent limitation of the tensile strength-increasing polymer. *Geissler* does not even mention tensile strength, and thus a rejection for anticipation of the process claims can only be made out, if at all, under principles of inherency. However, in a rejection based on inherency, it is well established that the inherency must be certain, *Ex parte Cyba*, 155 USPQ 756 (POBA 1966); *Ex parte McQueen*, 123 USPQ 37 (POBA 1958), and must be the necessary result and not merely a possible result. *Ex parte Keith*, 154 USPQ 320 (POBA 1966). Here, there is nothing in the prior art which indicates that the polymers of *Geissler* would improve tensile strength.

Thus, Applicant avers that *prima facie* anticipation has not been made out. The claim limitations are not anticipated by the *Trintec* “strict identity” test.

Moreover, the case law does not support the Office’s grounds for a rejection for anticipation. It is well established in our patent law jurisprudence that a claim to a compound containing a narrower range of one or more ingredients is patentable over a prior art disclosure of a broader range if the criticality of the narrower range is demonstrated. The cases which support this concept are legion, and establish the basis for the entire patent system. If a subsequent invention with superior results were never patentable over a broader generic disclosure, there would be no incentive to devote multitudinous research dollars into developing new products if anyone could subsequently produce such products, which would be the case in the absence of patent protection. In such a scenario, research would die, and innovative plastics, composites, pharmaceuticals, etc., many of which are “improvement inventions,” would not be generated. The U.S. law in this respect is coextensive with the laws of all other industrialized countries, which allow for “selection” inventions.

A case in point is *In re Kollman*, 201 USPQ 193 (CCPA 1979). In *Kollman*, the claims were directed to a combination of one herbicide, Fenac, with a diphenyl ether herbicide, in a weight ratio of 1:10 to 20:1. The Examiner had rejected the claims over a Bayer patent which disclosed diphenyl ether herbicides, and indicated that these herbicide could be mixed with Fenac. The Board affirmed the rejection of the claims under § 103, and added a new rejection under 35 U.S.C. §102, since Bayer disclosed the broad combination. Bayer, however, did not disclose the claimed (and broad) range of 1:10 to 20:1.

The CCPA reversed the § 102 rejection of the claims. The Court stated:

In the case at hand, even disregarding the fact that Bayer fails to highlight the claimed composition among the many dozens disclosed, it is apparent there is no suggestion of the required FENAC/diphenyl ether ratio. Accordingly, we reverse the § 102 rejection. (emphasis added)

Thus, the situation in *Kollman* is the same as here presented. The claimed ratio (percentage) of 0.2 to 1.5 is not disclosed by *Geissler*. *Kollman* is still the law, and must be followed. It is clear, therefore, that even were the rejection under 35 U.S.C. § 102 *prima facie* correct, it must be withdrawn.

See also, *In re Arkley*, 172 USPQ 525 (CCPA 1972), where claims directed to certain cephalosporin antibiotics were rejected over a prior art genus which included the claimed species. The prior art genus described some 230,000 species, but had examples directed to two of the precursors of the more limited genus claimed by Arkley. The claims were rejected under 35 U.S.C. § 102(e), and the rejection was affirmed by the Board. However, the CCPA reversed the board, having “no difficulty in deciding that the portions of the Flynn reference relied upon . . . do not identically describe the claimed subject matter.” Cases such as *Kollman* and *Arkley* clearly indicate that a species or a more limited genus is not anticipated over a prior broader generic disclosure which does not identically describe the species or more limited genus, in the present case, a more limited genus of weight percentage as compared to a broader weight percentage range.

See also, *Becket v. Coe, Com’r Pats*, 38 USPQ 26 (C.A.D.C. 1938), where an alloy which is stain-resistant and deep-drawing with critical ranges of various metals was held not anticipated by prior art references which broadly disclosed compositions which fell within the claimed ranges but failed to mention either claimed alloy property, and failed to present any example actually falling within the claimed range; and *Rem-Cru Titanium, Inc. v. Watson, Com’r Pats*, 112 USPQ 88 (DCDC 1956), which reversed a rejection based on 35 U.S.C. § 102 over a reference which disclosed an alloy falling within the claimed percentages of titanium and aluminum. As the Court stated:

There is no question that if the prior art shows a range which includes the range claimed in the instant application, in the absence of the production of a different product by plaintiff, plaintiff is not entitled to a patent.

In other words, a range within a range is patentable if critically of the range results in producing a different product, or as the Court stated,

There is no question that a “different product,” that is, one differing in kind rather than degree, is essential for patentability [when there are overlapping ranges], but it is the difference in properties or characteristics that illustrate this difference in kind.

Rem-Cru at 92. See, also, *In re Waymouth*, 182 USPQ 290 (CCPA 1974), discussed in Applicant’s last response, and in particular, *In re Kalm*, 154 USPQ 10 (CCPA 1967), where the court stated that a reference which does not render a claimed invention obvious cannot anticipate the invention under 35 U.S.C. § 102(e).

The Office cites *Atlas Powder Co. v. IRECO Inc.*, 51 USPQ2d 1943, 1945 (Fed. Cir. 1999), and *Ex parte Lee*, 31 USPQ2d 1105, 1106 (BPAI 1993). In *Atlas*, the decision was one based on the inherency of a prior art composition as meeting the claim language requiring that “sufficient aeration is entrapped to enhance sensitivity to a substantial degree.” The Applicant failed to present any evidence at the trial below which indicated that the amount of entrapped air was different from that of the prior art, which did not disclose this feature, but apparently used the same mixing procedure. Although the ranges of chemical ingredients of the claimed composition overlapped those of the prior art, this fact alone was not dispositive of anticipation, because the claim also required aeration. Thus, any statements regarding anticipation due to overlapping ranges *per se* is dicta, and not the law. *Atlas* stands for the proposition, similar to that recited in *Becket* and *Coe*, that if the ranges overlap, and no difference in properties is proven, then anticipation can be made out. In the present case, there is a decided difference in properties, and *Atlas* does not apply.

Ex parte Lee is also not dispositive. In *Lee*, a seven member panel was convened for the purpose of determining whether a named endpoint of a range would serve the same function as an actual example as an anticipatory species. The Board commented that there was some disagreement between the members of the Board. There is also considerable

disagreement between the plurality (not majority) decision and binding precedent. While the decision as to anticipation under the facts of the case is controlling as to the inventor Lee, there is no new law set forth which may be applied to other Applicants.

In *Lee*, three of the seven Board members, a minority, concluded, contrary to well established binding precedent, that endpoints of an enumerated range are just as preclusive of novelty as an actual example. However, the three Board members constitute a minority, and thus the decision, even were it consistent with DCDC, CADC, CCPA, and Federal Circuit law, is not believed controlling as to this point of law. The majority disagreed 4-3.

Moreover, even were it controlling, the results would not fit the present case. In the present case, there are three ranges disclosed: 0 to 99% (no range, claim 19); 0 to 5% (specification, column 3, line 1), and 0.1 to 5% (specification, column 3, line 2). If the plurality decision is followed, any of 0, 0.1, and 5 weight percent of the listed comonomers would have the same effect for purposes of anticipation as an actual example. However, the range claimed by Applicant is 0.2 to 1.5%, and neither the low end of the range nor the upper end touch the end points of *Geissler*. Therefore, even were the *Lee* decision consistent with the law, it would not be applicable to the present invention.

In the present case, Applicant's found that a critical range of water soluble comonomers produces a unique result, an increase in tensile strength and other properties in hydraulically setting constructive adhesives over compositions containing no comonomer, or containing more than 1.5% comonomer. This is exactly the difference in properties which the case law indicates removes the claims from anticipation despite overlapping ranges.

Applicant's expressly disagree with the statement of the Office (Office Action, page 4, first ¶) relating to the language of the process claims, and citing *In re Tomlinson*. *Geissler* never made any compositions within the scope of Applicant's claims. Therefore, the step of increasing tensile strength is not met by *Geissler*, who does not discuss or even mention tensile strength. *Tomlinson* only applies when the new property on which patentability hinges

is an inherent property of an identical composition. This would be a new use of an old composition. The situation here is different, first because there is no evidence that the *Geissler* composition necessarily increases tensile strength, required for inherent anticipation, *Ex parte Cyba, op. cit.*, and second, the compositions of the claims are novel, never having been made by *Geissler*. It should be noted that *Tomlinson* was repudiated in the subsequent case of *in re Zierden*, 162 USPQ 102, 106 (CCPA 1969), when cited by the Board for the same proposition cited for here by the Office.

2. The 35 U.S.C. § 103(a) Rejection

The claims have also been rejected for obviousness under 35 U.S.C. § 103(a). The Office states that

“It would have been obvious to the skilled artisan to extrapolate, from the disclosure of *Geissler*, the hydraulically settable inorganic binder-based construction adhesive as claimed, as per such having been within the purview of *Geissler's* general disclosure and with a reasonable expectation of success.”

Applicant totally disagrees. *Geissler* teaches a method of preparing a polymer using specific polymerization initiators to increase storage stability. This is a problem with which Applicant is not concerned. His process for preparing polymers, using the catalysts eschewed by *Geissler*, works just fine. It was Applicant's goal to provide polymers which would improve tensile strength of hydraulically settable compositions, particularly when wet. Note page 2, lines 23 to 38 of the specification. The talisman of obviousness is whether the reference directs the skilled artisan to the solution of the problem addressed. There is no teaching or suggestion in *Geissler*, factually no mention at all, of improved tensile strength, particularly under wet and freeze/thaw conditions. One skilled in the art, seeking to improve upon these characteristics, would be motivated by the prior art to include hydrophobic monomers into the redispersible powder, as taught, for example, by GB-A-14 07 827; EP-B-35332; and EP-A-640630, all discussed in the specification on page 2. However, rather than proceeding in the direction of accepted wisdom, which teaches avoiding water soluble and hence hydrophilic

monomers, Applicant surprisingly discovered that hydrophilic monomers prove inordinately successful, but only over a narrow, critical range.

The ethylenically unsaturated monomers of *Geissler* are predominately hydrophilic (diesters of maleic acid are mostly hydrophobic, but are not within the scope of Applicant's claims). One skilled in the art, in view of *Geissler*, and the GB and EP references cited, and desirous of improving tensile strength, particularly under wet conditions, would add hydrophobic monomers, not water soluble monomers. All the references must be considered for what they fairly teach or suggest, including those cited by Applicant, not only those cited by the Office. *In re Dow*, 5 USPQ2d 1529 (Fed. Cir. 1988); accord, *In re Fournet*, 148 USPQ 740 (CCPA 1966).

In all fairness, one skilled in the art, not having Applicant's application in front of him or her, would not have been directed to the claimed invention by *Geissler*. Rather, one would have looked at *Geissler* only for what *Geissler* really teaches -- a way of making polymers employing a non-traditional catalyst. One faced with Applicant's problem is not directed to a solution by *Geissler*. As stated long ago, a reference which does not discuss the problem faced by Applicant cannot suggest a solution. *In re Shaffer*, 108 USPQ 326 (CCPA 1956). Withdrawal of all rejections of the claims is solicited.

Applicants submit that the claims are now in condition for Allowance, and respectfully request a Notice to that effect. If the Examiner believes that further discussion will advance the prosecution of the Application, the Examiner is highly encouraged to telephone Applicants' attorney at the number given below.

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